

Notice of Allowability	Application No.	Applicant(s)	
	10/617,936	FARNWORTH, WARREN M.	
	Examiner	Art Unit	
	Jennifer M. Dolan	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amdt. filed 7/19/04.
2. ☒ The allowed claim(s) is/are 29-55.
3. ☒ The drawings filed on 10 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).


* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>6/29/04 + 7/10/03</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
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 CARL WHITEHEAD, JR.
 SUPERVISORY PATENT EXAMINER
 TECHNOLOGY CENTER 2808

DETAILED ACTION

This action is in response to the amendment/remarks filed on 7/19/04.

Allowable Subject Matter

1. Claims 29-55 are allowed.
2. The following is an examiner's statement of reasons for allowance:

The primary reason for allowance is that the prior art fails to suggest using a non-oxidizing metal layer to cover and seal both a redistribution conductor and a wire-bonding pad for a semiconductor component. Several patents, such as U.S. Patent No. 6,455,408 to Hwang, teach the use of a non-oxidizing metal layer disposed on top of a redistribution conductor and bonding pad, but there is no suggestion to dispose the non-oxidizing metal such that it completely seals the metal structure, nor is there a suggestion that the surface of the bonding pad is suitable for wirebonding, rather than solder bumping. Several references teach the use of metal layers, including either gold, tungsten, chromium, or other such metals, to completely seal a bonding pad, (see U.S. Patent No. 5,910,644 to Goodman et al. or U.S. Patent No. 5,445,311 to Trask et al.), but there is no suggestion of sealing an entire redistribution conductor, rather than just a bonding pad, and there is no motivation provided for selecting gold or a specifically non-oxidizing metal layer rather than any of the other disclosed or preferred metals. Although there are some suggestions in the prior art for completely covering bonding pads with a metal that could be made of gold, it is the examiner's opinion that such teachings do not provide sufficient motivation for selecting the one non-oxidizing metal (Au) from among the list of preferred

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metals in the prior art, and then completely sealing a bonding pad and a redistribution conductor with the gold or with another non-oxidizing metal, particularly since such sealing layers affect the thickness and conductivity of the redistribution wiring. Also, since wirebonding pads and solder bumping pads have different design considerations, it is the examiner's opinion that it would not be obvious to simply use a solder bumping pad structure for wirebonding.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer M. Dolan whose telephone number is (571) 272-1690. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer M. Dolan
Examiner
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